Changing The Face Of Urban Warfare

DoD Advanced Concept Technology Demonstration Evaluates City-Fighting Technologies

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When Russian troops attacked Grozny last year, they were greeted by this graffiti: "Welcome to Hell." It's a fitting description for urban warfare, which is more probable for US forces as the world becomes more urban.

During the past three years, the Defense Department has been attempting to improve its capability to fight in urban terrain in an initiative called the Military Operations in Urban Terrain Advanced Concept Technology Demonstration (MOUT ACTD). It has been successful in finding some ways to achieve US technological superiority in this area. But in order to be fully successful, these solutions must be fielded in sufficient quantities to make a difference. That's one of our next challenges in creating an improved urban warfare capability.

Today, nearly 14,000 US troops operate in urban areas. This isn't by chance. It's indicative of global urbanization. Some 2.9 billion people now live in the world's cities—almost half of the world's 6.1 billion population. By 2030, the UN estimates that 4.9 billion of the world's 8.1 billion population will reside in cities. Most growth will occur in less-developed regions, where urban populations will increase from 1.9 billion today to 3.9 billion in 2030.

But US forces have been primarily designed to fight and win in the rolling hills of the Fulda Gap and in the desert. This fact is recognized by our potential enemies, who will seek to negate our technological advantage by drawing our forces into urban combat. According to press accounts, this may have been the case in Mogadishu in 1993, when Somali militia commanders had hoped to fight US forces in the city, where combat could be reduced to rifle against rifle.

The cost of urban warfare has been high. Just ask Russian commanders. The first unit to enter Grozny in 1994 was the 1,000-man 131st "Maikop" Brigade. After three days of fighting, it had lost nearly 800 men, 20 of 26 tanks, and 102 of 120 vehicles.

The need for improved urban warfare capabilities was recognized by the Defense Science Board. In its 1994 report, "Military Operations in Built-Up Areas," it stated that the urban area would be "the most complex and resource-intensive battlefield," and "the most likely battlefield of the 21st century." This need for improvement has since been emphasized in the Joint Science and Technology Warfighting Plan, Defense Planning Guidance, and House Armed Services Committee language.

EVALUATING MOUT TECHNOLOGIES

In response to this need, the MOUT ACTD was initiated in 1997. The ACTD program is a Defense Department effort that brings warfighters and scientists together so that technology can be assessed early by warfighters and, if successful, fielded faster than before.

The MOUT ACTD did four things:

- Evaluated technologies that would enable dominance in urban warfare;
- Developed tactics, techniques, and procedures for employment of the new technologies;
- Provided interim capabilities to operational units; and,
- Set the stage for rapid acquisition of selected technologies.

Here is how this was done. It is a good example of how all ACTDs evolve.

First, we had to determine what the warfighters needed; bringing together Army soldiers and Marines with experience in urban operations accomplished this. They identified deficiencies encountered in Grenada, Panama, Somalia, and Haiti. These deficiencies were reduced to 32 user needs in four categories: force protection; command, control, communications, computers and intelligence; engagement; and mobility.

A team of scientists and engineers, led by the Army's Natick Soldier Center in Natick, MA, then went to work. They searched globally for technologies that might fill these needs. Initially, they found some 600 commercial and government technologies. The government team, along with the Institute for Defense Analyses, evaluated them against user-defined requirements and the list was narrowed to 230 potential solutions.

The scientists and warfighters then came together again. The 230 solutions were presented in an operational "show and tell" to warfighters. They selected 128 solutions for evaluation in six Army and four Marine experiments at Fort Benning, GA and Camp Lejeune, NC. These were designed and set up by the Army's Dismounted Battlespace Battle Lab and the Marine Corps Warfighting Lab.

Warfighters then determined what worked and what didn't in these live, force-on-force experiments. They compared technologies against each requirement and measured performance to determine military utility. This was done using a "baseline." Tactical scenarios were run both with standard equipment and tactics, techniques, and pro-

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cedures (TTPs) and with experimental technology products and TTPs. Soldiers and Marines then repeated the same scenario, testing different items each time. This made it possible to compare competing candidates' performance.

Based on these experiments, 32 solutions out of the 128 were selected for integration into a "system-of-systems." This kit was evaluated in two joint experiments involving soldiers and Marines. They assessed collective utility and interoperability. This was further reduced to 25 proven-effective solutions. The final selection was validated in a battalion-level culminating demonstration at the Joint Readiness Training Center, in Fort Polk, LA this past September.

POSITIVE RESULTS

This ACTD resulted in a number of improvements in urban warfare. It came up with better protective equipment, to include cut-resistant gloves, knee pads, goggles, and hearing protection. Particularly noteworthy is an assault vest that is lighter and provides better ballistic protection than past vests.

This initiative also found ways to get troops out of streets, where 80 percent of casualties occur, and into buildings where they regain their technological edge. This requires rapid breaching, which has been a problem in the past. During Operation Just Cause in Panama, US troops used ineffective and dangerous techniques, such as grenades and anti-tank rounds.

Explosive cutting tape is one breaching item. It can be taped to a concrete wall and safely create a hole large enough for troops to walk through. Additionally, the Israeli Rafael Simon breaching round can be fired from a rifle at a distance of 30 meters to blow doors off their hinges to allow rapid entry into a building.

Not all breaching devices are explosive. The MOUT ACTD has come up with a set of "Hooligan" tools to force doors and windows and create "mouseholes." These tools are lighter variations of sledgehammer and crowbar combinations.

It often helps to get on top of buildings. Army units in Haiti used ladders. The MOUT ACTD found that the "Quik-Step Ladder," which fits in a rucksack, enables access to one-story rooftops. Another man-portable ladder can reach three-story rooftops.

In the past, tactical command and control also has been a problem. One officer who was in the Panama operation noted that "command and control breaks down in an urban area." During experiments, each soldier and Marine was equipped with a lightweight intra-squad radio, to include a headset for "hands-free" communication. One Marine noted the difference: "We did two operations last night; one with radios and one without. It was a catastrophe without."

In urban warfare, a tactical advantage goes to those who can navigate through maze-

like passages; however, gaining this advantage has been difficult for "out-of-towners." In Grenada, US troops had only tourist maps. In the 1994-95 Grozny attack, Russian tactical commanders had no maps.

The MOUT ACTD validated the use of a "Battlespace Mapper." This is a laptop computer that uses scanned map images, overhead imagery, and other data. It also may be operated with the "Sextant Virtual Warfighting Tool." This provides a three-dimensional, "fly-through" view of urban areas and can be used in mission planning and rehearsal.

The MOUT ACTD also effectively used unmanned systems in gathering tactical information. One system was the Pointer Unmanned Aerial Vehicle (UAV), with thermal and daytime cameras capable of relaying real-time surveillance images back to battalion-level users.

Also, this ACTD did much to close a gap between what has been written and what is actually done in urban warfare. It produced eight TTP handbooks, which are now being used in the 10th Mountain Division's training course for unit leaders. Assistant Division Commander Brig. Gen. Gary Speer states that this is "a critical resource for unit commanders in training their soldiers, squads, and platoons on urban warfighting skills." He also states that this ACTD's results have helped increase urban capabilities.

The MOUT ACTD resulted in significant potential improvements in how ground forces will operate in urban areas. Above all, its results are based on what soldiers and Marines said they need. They are the real warfighters in urban operations—the gunfighters in the streets. In addition, this ACTD leaves behind an interim capability so that units can continue to learn and to train. The equipment will also be used operationally when the Army's 2nd Battalion, 22nd Infantry deploys to Bosnia with this residual equipment and 2nd Battalion, 8th Marines deploys with it as part of a Marine Expeditionary Unit.

Potentially, this initiative will contribute to US technological superiority in urban warfare, but only if these improvements are broadly fielded across the relevant forces. This will require a concerted effort. As a recent General Accounting Office report pointed out, a focal point for urban warfare is needed to ensure that improvements don't get short shrift in the budget and that uniform fielding occurs. That focal point could also help to develop an overarching approach to preparing for urban warfare.

Those who don't prepare for urban warfare will either have to try to avoid it or pay dearly when they encounter it. Neither is an acceptable option for US forces. Because the MOUT ACTD has helped to prepare us for the challenges of urban warfare, we realize that a viable alternative exists.

To continue to make progress in this area will require a coordinated effort at the operational level. At that level, the service intelligence agencies also need to play an increased role. That's urban warfare's challenge-after-next. ■